

What Is Claimed Is:

1. A semiconductor package comprising:

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a semiconductor die having a substantially planar light receiving surface for receiving light from outside of the package, and a substantially planar opposing surface, wherein a plurality of bond pads are disposed on the periphery of the light receiving surface;

a plurality of conductive bumps fused to the bond pads;

10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95
a glass having a substantially planar first surface and a substantially planar second surface, wherein a plurality of electrically conductive patterns are formed near the circumference of the second surface, each of the conductive patterns having a first contact in electrical contact with an associated one of the conductive bumps; and

15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95
a plurality of conductive balls having a diameter greater than a height of the semiconductor die, wherein the conductive balls are each fused to a second contact of an associated one of the electrically conductive patterns.

20 2. The semiconductor package of Claim 1, wherein the glass further includes channels formed between the second surface thereof and an end thereof, the conductive patterns being formed in the channels.

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3. The semiconductor package of Claim 1, wherein the conductive patterns are patterns etched from a conductive layer disposed on on the glass.

5 4. A semiconductor package comprising:

a semiconductor die having a substantially planar light receiving surface for receiving light from outside of the package and having a plurality of electrical contacts;

a plurality of terminals for connecting signals from the semiconductor die to an external device;

15 a glass for permitting light to enter the semiconductor package and pass to the light receiving surface of the semiconductor die, the glass including means for connecting the plurality of electrical contacts to the terminals.

5. A semiconductor package comprising:

a semiconductor die having a substantially planar light receiving surface for receiving light from outside of the package, and a substantially planar opposing surface, wherein a plurality of bond pads are disposed on the periphery of the light receiving surface, and wherein each of the bond pads includes a die via hole passing through the bond pad and a die conductive via formed within each die via hole;

a substrate having substantially planar first and second surfaces and a third surface upwardly protruding along the periphery of the first surface thereof at a predetermined height, a substrate via hole formed at a region corresponding to the bond pads of the semiconductor die, and a substrate conductive via formed into the substrate via hole thereof;

a conductive connector electrically connecting the die conductive via of the semiconductor die to the substrate conductive via of the substrate; and

a glass attached to the third surface of the substrate by a die attach material.

6. The semiconductor package of Claim 5, further comprising:
- a second semiconductor die positioned at a region corresponding to the opposing surface of the first semiconductor die, the second semiconductor die including substantially planar first and second surfaces and a plurality of bond pads formed on the second surface thereof, and wherein each of the bond pads of the second semiconductor die include a secondary die via hole passing through the bond pad and a secondary die conductive via formed within each secondary die via hole;
- secondary substrate conductive vias formed within secondary substrate via holes passing through the substrate at a region corresponding to the bond pads of the second semiconductor die; and
- a secondary conductive connector electrically connecting the secondary die conductive vias die to the secondary substrate conductive vias.

7. The semiconductor package of Claim 6, wherein the first semiconductor die and the second semiconductor die are attached together by a die attach material.

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8. A semiconductor package comprising:

a semiconductor die having a substantially planar light receiving surface for receiving light from outside of the package and having a plurality of electrical contacts, the semiconductor die including means for connecting the electrical contacts from the light receiving surface to an opposing surface;

a glass for permitting light to enter the semiconductor package and pass to the light receiving surface of the semiconductor die; and

a substrate including a plurality of terminals for connection to an external device mounted through the substrate, the substrate including means for supporting the glass above the light receiving surface and means for connecting the terminals to the electrical contacts at the opposing surface of the semiconductor die.

9. A semiconductor package comprising:

a semiconductor die having a substantially planar light receiving surface for receiving light from outside of the package, and a substantially planar opposing surface, wherein a plurality of bond pads are disposed on the periphery of the light receiving surface, and wherein each of the bond pads includes a die via hole passing through the bond pads and a die conductive via formed within each die via hole;

a plurality of leads having approximately planar first second and third surfaces, the third surface having a height which is above that of the first surface and formed at the periphery of the first surface, wherein the first surface is connected to the die conductive via at the second surface of the semiconductor die by a conductive connector;

a glass attached to edges of the first surface of the semiconductor die by an attach material; and

an encapsulant for encapsulating the semiconductor die and the leads, the second surface of the leads being exposed to the outside of the encapsulant.

10. The semiconductor package of Claim 9, wherein the glass is further attached to the third surface of the leads by an attach material.

11. The semiconductor package of claim 9, further comprising a substantially planar die mounting board attached to the second surface of the semiconductor die, the die mounting board having no contact with the leads and one surface thereof being exposed
5 to the outside of the encapsulant.

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12. The semiconductor package of Claim 11, wherein the glass is further attached to the third surface of the leads by an attach material.

13. A semiconductor package comprising:

a semiconductor die having a substantially planar light receiving surface for receiving light from outside of the package, and a substantially planar opposing surface, wherein a plurality of bond pads are disposed on the periphery of the light receiving surface, and wherein each of the bond pads includes a die via hole passing through the bond pads and a die conductive via formed within each die via hole;

a plurality of leads having approximately planar first second and third surfaces, the third surface having a height which is above that of the first surface and formed at the periphery of the first surface;

a glass attached to edges of the first surface of the semiconductor die by an attach material, and wherein the plurality of leads further comprise means for supporting the glass and the glass is coupled to the support means; and

an encapsulant for encapsulating the semiconductor die and the leads, the second surface of the leads being exposed to the outside of the encapsulant.

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